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7  
8 **UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF WASHINGTON  
AT SPOKANE**

9 AMANDA BANTA, et al.,

10 Plaintiffs,

11 v.

12 ROBERT W. FERGUSON, Attorney  
General of the State of Washington,  
13 et al.,

14 Defendants.

NO. 2:23-cv-00112-MKD

DECLARATION OF LOUIS  
KLAREVAS, PHD, IN SUPPORT  
OF STATE DEFENDANTS'  
OPPOSITION TO MOTION FOR  
PRELIMINARY INJUNCTION

15 **I. PROFESSIONAL QUALIFICATIONS**

16 1. I am a security policy analyst and, currently, Research Professor at  
17 Teachers College, Columbia University, in New York. I am also the author of the  
18  
19

1 book *Rampage Nation*, one of the most comprehensive studies on gun massacres  
2 in the United States.<sup>1</sup>

3 2. I am a political scientist by training, with a B.A. from the University  
4 of Pennsylvania and a Ph.D. from American University. During the course of my  
5 nearly 25-year career as an academic, I have served on the faculties of George  
6 Washington University, the City University of New York, New York University,  
7 and the University of Massachusetts. I have also served as Defense Analysis  
8 Research Fellow at the London School of Economics and Political Science and as  
9 United States Senior Fulbright Scholar in Security Studies at the University of  
10 Macedonia.

11 3. My current research examines the nexus between American public  
12 safety and gun violence, including serving as an investigator in a study funded by  
13 the National Institutes of Health that focuses on reducing intentional shootings at  
14 elementary and secondary schools.

15 4. In addition to having made over 100 media and public-speaking  
16 appearances, I am the author or co-author of more than 20 scholarly articles and  
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18 <sup>1</sup> Louis Klarevas, *Rampage Nation: Securing America from Mass Shootings*  
19 (2016).

over 70 commentary pieces. In 2019, my peer-reviewed article on the effectiveness of restrictions on LCMs in reducing high-fatality mass shootings that result in six or more victims killed was published in the *American Journal of Public Health*.<sup>2</sup> This study found that jurisdictions with LCM bans experienced substantially lower gun massacre incidence and fatality rates when compared to jurisdictions not subject to similar bans. Despite being over 3 years old now, this study continues to be one of the highest-impact studies in academia. It was recently referred to as “the perfect gun policy study,” in part due to the study’s “robustness and quality.”<sup>3</sup>

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<sup>2</sup> Louis Klarevas, et al., *The Effect of Large-Capacity Magazine Bans on High-Fatality Mass Shootings*, 109 *American Journal of Public Health* 1754 (2019), available at <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2019.305311> (last accessed February 11, 2023).

<sup>3</sup> Lori Ann Post and Maryann Mason, *The Perfect Gun Policy Study in a Not So Perfect Storm*, 112 *American Journal of Public Health* 1707 (2022), available at <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2022.307120> (last accessed February 11, 2023). According to Post and Mason, “Klarevas et al. employed a sophisticated modeling and research design that was more rigorous than designs used in observational studies. Also, they illustrated the analytic steps

5. Since January 1, 2019, I have been deposed, testified in court, or testified by declaration in the following cases (all in federal court), listed alphabetically by state:

**California – Central District**

*Rupp v. Bonta*

8:17-cv-00746-JLS-JDE

**California – Eastern District**

*Wiese v. Bonta*

2:17-cv-00903-WBS-KJN

**California – Southern District**

*Duncan v. Bonta*

17-cv-1017-BEN-JLB

*Jones v. Bonta*

19-cv-01226-L-AHG

*Miller v. Bonta*

3:19-cv-1537-BEN-JBS

*Nguyen v. Bonta*

3:20-cv-02470-WQH-MDD

**Colorado**

*Gates v. Polis*

1:22-cv-01866-NYW-SKC

**Connecticut**

*National Association for Gun Rights v. Lamont*

3:22-cv-01118-JBA

**Hawaii**

*National Association for Gun Rights v. Lopez*

1:22-cv-404-DKW-RT

**Illinois – Northern District**

*Viramontes v. Cook County*

1:21-cv-04595

*National Association for Gun Rights v. Highland Park*

22-cv-04774

*Herrera v. Raoul*

1:23-cv-00532

**Illinois – Southern District**

*Harrel v. Raoul\**

23-cv-141-SPM

they took to rule out alternative interpretations and triangulate their findings, for example examining both state bans and federal bans. They helped build the foundation for future studies while overcoming the limitations of previous research.” *Id.*

1	<i>Langley v. Kelly</i> *	23-cv-192-SPM
	<i>Barnett v. Raoul</i> *	23-cv-209-SPM
2	<i>Federal Firearms Licensees of Illinois v. Pritzker</i> *	23-cv-215-SPM
	<i>Kenneally v. Raoul</i>	3:23-cv-50039
3	<b>Massachusetts</b>	
	<i>National Association for Gun Rights v. Campbell</i>	1:22-cv-11431-FDS
4	<b>Oregon</b>	
	<i>Oregon Firearms Federation v. Kotek</i> †	2:22-cv-01815-IM
5	<i>Fitz v. Rosenblum</i> †	3:22-cv-01859-IM
	<i>Eyre v. Rosenblum</i> †	3:22-cv-01862-IM
6	<i>Azzopardi v. Rosenblum</i> †	3:22-cv-01869-IM
	<b>Washington – Eastern District</b>	
7	<i>Brumback v. Ferguson</i>	1:22-cv-03093-MKD
	<b>Washington – Western District</b>	
8	<i>Sullivan v. Ferguson</i>	3:22-cv-5403-DGE
	<i>Hartford v. Ferguson</i> (Present Case)	3:23-cv-05364-RJB
9	*Non-Consolidated Cases on the Same Briefing Schedule / †Consolidated Cases	

6. In 2021, I was retained by the Government of Canada in the following cases which involved challenges to Canada's regulation of certain categories of firearms: *Parker and K.K.S. Tactical Supplies Ltd. v. Attorney General of Canada*, Federal Court, Court File No.: T-569-20; *Canadian Coalition for Firearm Rights, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-577-20; *Hipwell v. Attorney General of Canada*, Federal Court, Court File No.: T-581-20; *Doherty, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-677-20; *Generoux, et al. v. Attorney General of Canada*, Federal Court, Court File No.: T-735-20; and *Eichenberg, et al. v. Attorney General of Canada*, Federal

1 Court, Court File No.: T-905-20. I testified under oath in a consolidated court  
2 proceeding involving all six cases in the Federal Court of Canada.

3 7. I have also submitted declarations in the following state court cases:  
4 *People of Colorado v. Sgaggio*, District Court, El Paso County, Colorado,  
5 2022M005894 (Criminal); and *Guardian Arms v. Inslee*, Superior Court, Grant  
6 County, Washington, 23-2-00377-13 (Civil).

7 8. A true and correct copy of my current curriculum vitae is attached as  
8 **Exhibit A** to this Declaration.

9 9. I have been retained by the State Defendants to render expert opinions  
10 in this case. I am being compensated at a rate of \$480/hour for my work on this  
11 Declaration, \$600/hour for any testimony (including deposition testimony) in  
12 connection with this matter, and \$120/hour for travel required to provide  
13 testimony.

## 14 II. OPINIONS

15 10. It is my professional opinion, based upon my analysis of the data  
16 reviewed herein, that (1) in terms of individual acts of intentional criminal  
17 violence, mass shootings presently pose the deadliest threat to the safety of  
18 American society in the post-9/11 era, and the problem is growing nationwide;  
19 (2) mass shootings involving assault weapons, on average, have resulted in a

1 substantially larger loss of life than similar incidents that did not involve assault  
2 weapons; (3) mass shootings resulting in double-digit fatalities are relatively  
3 modern phenomena in American history, often related to the use of large-capacity  
4 magazines and assault weapons; (4) assault weapons are used by private citizens  
5 with a far greater frequency to perpetrate mass shootings than to stop mass  
6 shootings; (5) handguns, as opposed to rifles (let alone rifles that qualify as assault  
7 weapons), are the most commonly owned firearms in the United States; and (6)  
8 jurisdictions that restrict assault weapons experience fewer mass shooting  
9 incidents and fatalities, per capita, than jurisdictions that do not restrict assault  
10 weapons. Based on these findings, it is my opinion that restrictions on assault  
11 weapons have the potential to save lives by reducing the frequency and lethality of  
12 mass shootings.<sup>4</sup>

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14 <sup>4</sup> For purposes of this Declaration, I employ two prominent definitions of  
15 mass shootings from the field of firearm violence research. “High-fatality mass  
16 shootings” (also referred to as “gun massacres”) are shootings resulting in 6 or  
17 more fatalities, not including the perpetrator(s), regardless of location or  
18 underlying motive. “Mass public shootings” are shootings resulting in 4 or more  
19 fatalities, not including the perpetrator(s), occurring largely in a public setting and

1  
2  
3 not undertaken in pursuit of an underlying criminal objective (e.g., robbery, illicit  
4 trafficking, organized crime, gang violence, or domestic violence). Unfortunately,  
5 long-term, publicly-available, exhaustive data on all mass shootings resulting in 4  
6 or more fatalities, not including the perpetrator(s), regardless of location or  
7 underlying motive, are presently not available. This limits comprehensive  
8 scholarly analyses over a long period of time to the above two types of mass  
9 shooting violence: high-fatality mass shootings and mass public shootings. The  
10 data on high-fatality mass shootings is from a data set that I maintain and  
11 continuously update. This data set is reproduced in **Exhibit B**. The data set of mass  
12 public shootings that I analyzed is publicly available from The Violence Project.  
13 The creation of this data set was funded by the National Institute of Justice, which  
14 is part of the U.S. Department of Justice. In addition to basic variables, such as  
15 incident dates and locations, casualty counts, and information on offenders, The  
16 Violence Project data set also identifies whether an assault weapon was used to  
17 perpetrate a mass public shooting. The Violence Project data set is available at  
18 <https://www.theviolenceproject.org/mass-shooter-database> (last accessed  
19 December 27, 2022). The Violence Project data set is reproduced in **Exhibit C**.



**A. Mass Shootings Are a Growing Threat to Public Safety**

11. Examining mass-casualty acts of violence in the United States points to two disturbing patterns. First, as demonstrated in Table 1, the deadliest individual acts of intentional criminal violence in the United States since the terrorist attack of September 11, 2001, have all been mass shootings. Second, as displayed in Figures 1–4, the problem of mass shooting violence is on the rise. To put the increase over the last 50 years into perspective, between the ten-year-period of 1973–1982 and the ten-year-period of 2013–2022, the average population of the United States increased approximately 47%. However, the number of people killed in high-fatality mass shootings and mass public shootings between these two ten-year-periods, respectively, reflect 178% and 523% increases. In other words, the rise in mass shooting violence has far outpaced the rise in national population. The obvious takeaway from these patterns and trends is that mass shootings pose a significant—and growing—threat to American public safety.

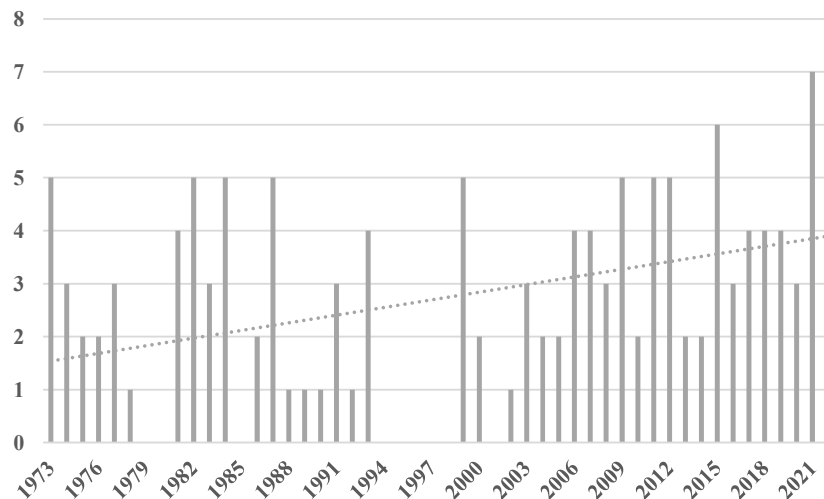
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Unless stated otherwise, all of the data used to perform original analyses and to construct tables and figures in this Declaration are drawn from **Exhibits B and C**.

**Table 1. The Deadliest Acts of Intentional Criminal Violence in the U.S. since 9/11**

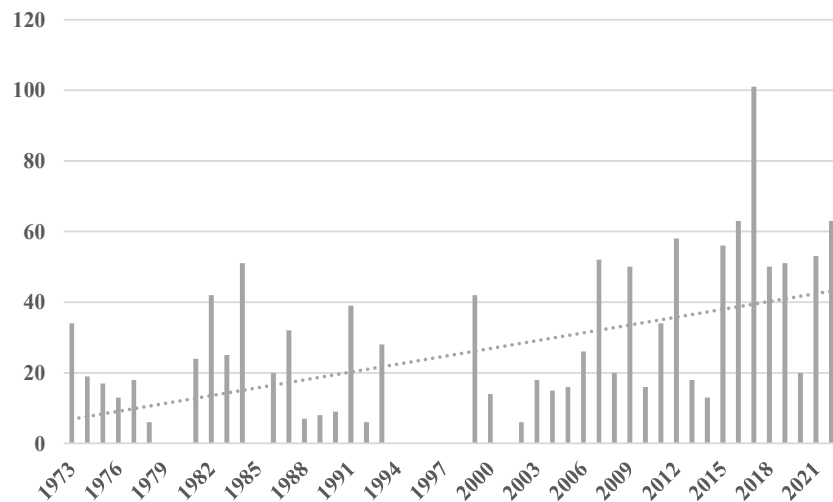
	Deaths	Date	Location	Type of Violence
1	60	October 1, 2017	Las Vegas, NV	Mass Shooting
2	49	June 12, 2016	Orlando, FL	Mass Shooting
3	32	April 16, 2007	Blacksburg, VA	Mass Shooting
4	27	December 14, 2012	Newtown, CT	Mass Shooting
5	25	November 5, 2017	Sutherland Springs, TX	Mass Shooting
6	23	August 3, 2019	El Paso, TX	Mass Shooting
7	21	May 24, 2022	Uvalde, TX	Mass Shooting

**Figure 1. Annual Trends in High-Fatality Mass Shooting Incidents, 1973–2022**



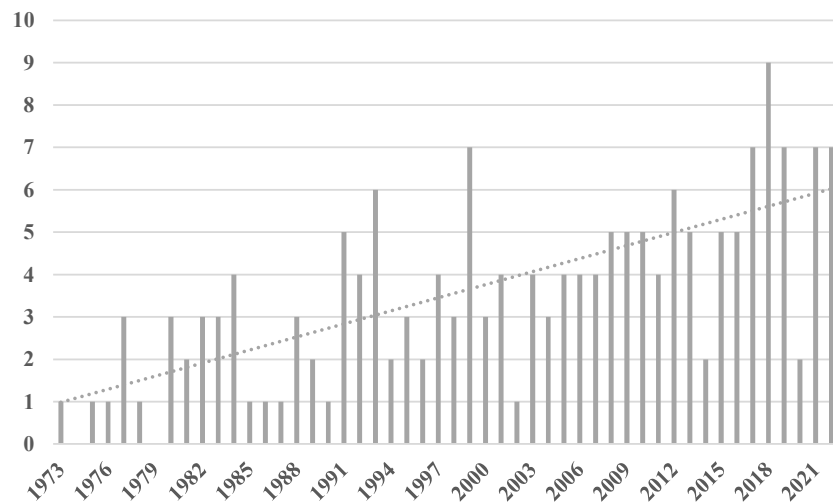
Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.

**Figure 2. Annual Trends in High-Fatality Mass Shooting Fatalities, 1973–2022**

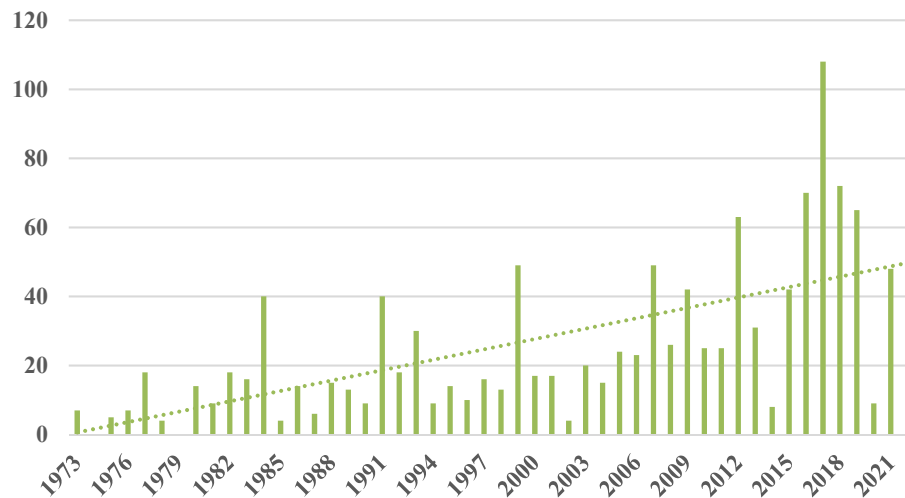


Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.

**Figure 3. Annual Trends in Mass Public Shooting Incidents, 1973–2022**



Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.

**Figure 4. Annual Trends in Mass Public Shooting Fatalities, 1973–2022**

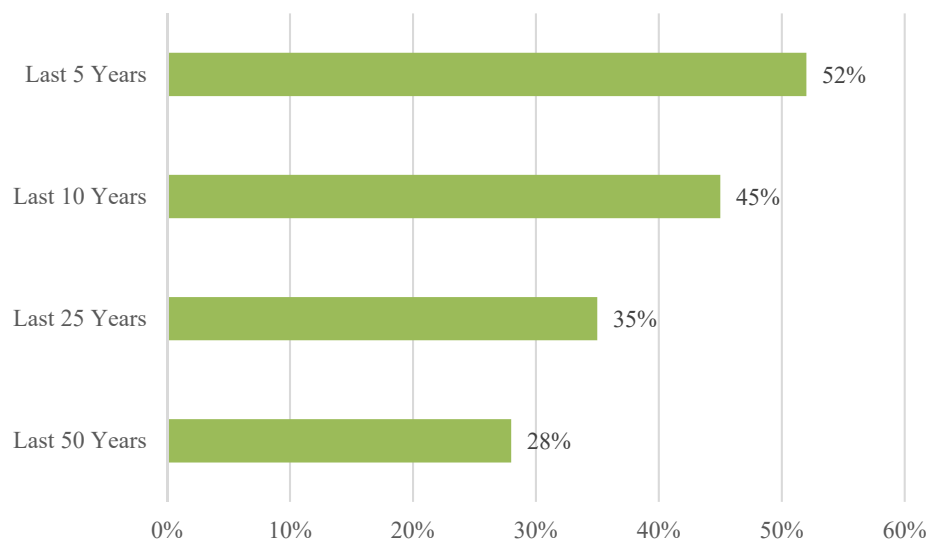
Note: The dotted line is a linear trendline. A linear trendline is a straight line that captures the overall pattern of the individual data points. When there is a positive relationship between the x-axis and y-axis variables, the trendline moves upwards from left to right. When there is a negative relationship between the x-axis and y-axis variables, the trendline moves downwards from left to right.

## **B. The Use of Assault Weapons Is a Major Factor in the Rise of Mass Shooting Violence**

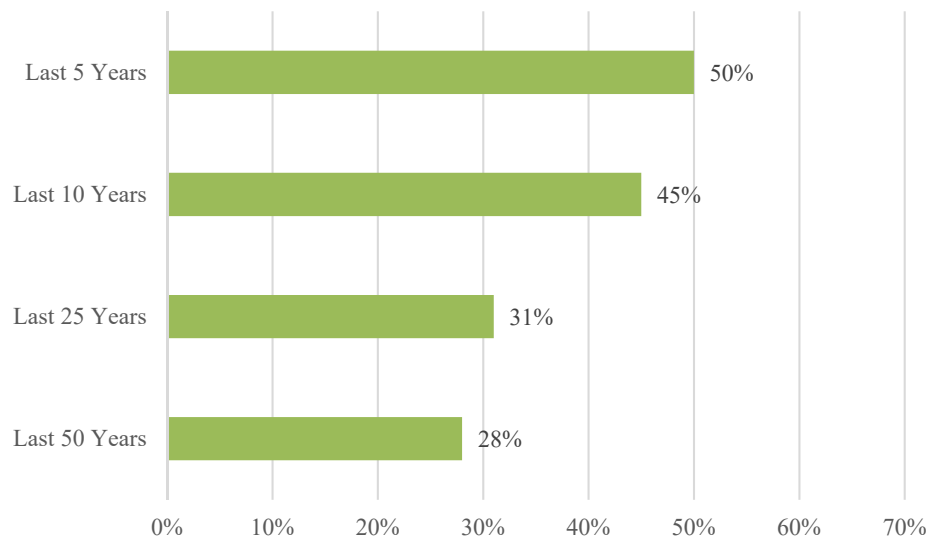
12. In addition to showing that the frequency and lethality of mass shootings are on the rise nationally, the data point to another striking pattern: the use of assault weapons in the commission of mass shootings has grown in vast proportions. In both high-fatality mass shootings and mass public shootings, assault weapons have been used with increased frequency. As shown in Figures 5 and 6, the pattern is particularly marked of late, with at least half of high-fatality mass shooting incidents and mass public shooting incidents in the last five years

involving assault weapons. A similar, albeit more pronounced, pattern is found when examining fatalities in the last five years, with approximately 6-in-10 high-fatality mass shooting deaths and mass public shooting deaths resulting from incidents involving assault weapons, as shown in Figures 7 and 8. These trends clearly demonstrate that, among mass shooters, there is a growing preference for using assault weapons to perpetrate their attacks.

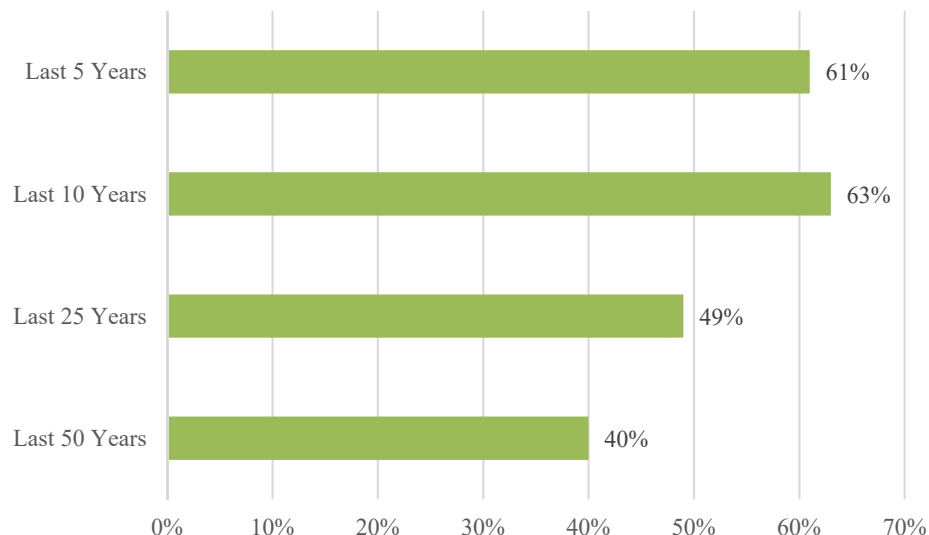
**Figure 5. Share of High-Fatality Mass Shootings Involving Assault Weapons**



Note: The calculations in Fig. 5 exclude two high-fatality mass shootings (3/15/2020, Moncure, NC, 6 deaths; and 9/7/2020, Aguanga, CA, 7 deaths) in which the firearms used are unknown.

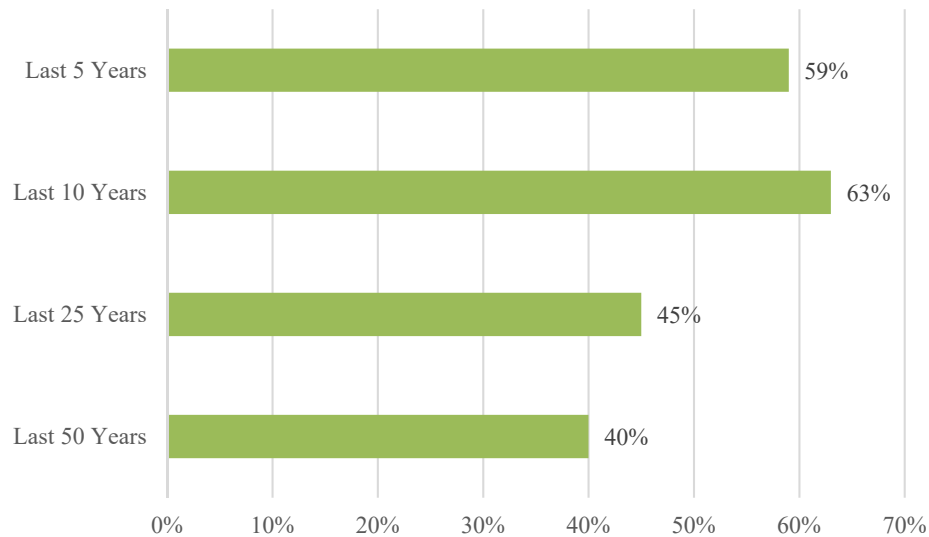
**Figure 6. Share of Mass Public Shootings Involving Assault Weapons**

Note: The calculations in Fig. 6 exclude one mass public shooting (2/6/17, Yazoo City, MS, 4 deaths) in which the firearms used are unknown.

**Figure 7. Share of High-Fatality Mass Shooting Deaths Resulting from Incidents Involving Assault Weapons**

Note: The calculations in Fig. 7 exclude two high-fatality mass shootings (3/15/2020, Moncure, NC, 6 deaths; and 9/7/2020, Aguanga, CA, 7 deaths) in which the firearms used are unknown.

**Figure 8. Share of Mass Public Shooting Deaths Resulting from Incidents Involving Assault Weapons**



Note: The calculations in Fig. 8 exclude one mass public shooting (2/6/17, Yazoo City, MS, 4 deaths) in which the firearms used are unknown.

13. The growing use of assault weapons to carry out mass shootings is an obvious theme reflected in the data. The *disproportionate* resort to assault weapons by perpetrators of mass shootings is another clear theme. The National Sport Shooting Foundation (NSSF) estimates that there are approximately 24.4 million “modern sporting rifles”—which is a firearm industry term for AR-15-platform and AK-47-platform firearms— in civilian hands as of the end of 2020.<sup>5</sup> Based on

<sup>5</sup> NSSF, *Commonly Owned: NSSF Announces over 24 Million MSRs in Circulation*, July 20, 2022, available at <https://www.nssf.org/articles/commonly->

1 federal government data, it appears that modern sporting rifles make up  
 2 approximately 5.3% of all firearms in circulation in American society (24.4 million  
 3 out of an estimated 461.9 million firearms).<sup>6</sup> And, in all likelihood, the NSSF's

4  
 5 [owned-nssf-announces-over-24-million-msrs-in-circulation](#) (last accessed  
 6 January 3, 2023).

7       <sup>6</sup> The 5.3% ownership rate for modern sporting rifles was calculated using  
 8 NSSF and Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) data. The  
 9 NSSF estimates that there are approximately 24.4 million modern sporting rifles  
 10 in civilian hands as of the end of 2020 (when the most recent data is available). In  
 11 a 2020 report that captured data through the end of 2018, the NSSF estimated that  
 12 there were 433.9 million total firearms in civilian circulation. NSSF, *Industry*  
 13 *Intelligence Reports: Firearm Production in the United States with Firearm Import*  
 14 *and Export Data, 2020*, at 18, available at [https://www.nssf.org/wp-](https://www.nssf.org/wp-content/uploads/2020/11/IIR-2020-Firearms-Production-v14.pdf)  
 15 [content/uploads/2020/11/IIR-2020-Firearms-Production-v14.pdf](https://www.nssf.org/wp-content/uploads/2020/11/IIR-2020-Firearms-Production-v14.pdf) (last accessed  
 16 January 3, 2023). According to ATF data, in 2019 and 2020, an additional 28.0  
 17 million firearms entered the civilian stock nationwide. ATF, *National Firearms*  
 18 *Commerce and Trafficking Assessment: Firearms in Commerce, 2022*, at 181, 188,  
 19 193, available at [DECLARATION OF LOUIS KLAREVAS,  
 PHD.  
 NO. 2:23-CV-00112](https://www.atf.gov/firearms/docs/report/national-firearms-</a></p>
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1 estimate of 24.4 million modern sporting rifles is an over-estimation because it  
2 appears to include firearms in the possession of domestic law enforcement agencies  
3 and firearm retailers (as well as possibly prohibited owners).<sup>7</sup> But, even using this  
4 estimate, if assault weapons were used in proportion to the percentage of modern  
5 sporting rifles in circulation, approximately 5% of all mass shootings would  
6 involve assault weapons. However, as seen in Figures 5–6 above, civilian  
7 ownership rates and mass-shooter use rates are not similar. Indeed, the current  
8 difference is approximately ten-fold, with the rate at which assault weapons are  
9 now used to commit mass murder far outpacing the rate at which modern sporting  
10 rifles circulate amongst civilians in the United States.

11  
12  
13 [commerce-and-trafficking-assessment-firearms-commerce-volume/download](#)

14 (last accessed January 3, 2023). Assuming these figures reported by the NSSF and  
15 the ATF are accurate, this brings the estimated number of firearms in civilian  
16 circulation through the end of 2020 to approximately 461.9 million. The ownership  
17 rate is calculated as follows: 24.4 million modern sporting rifles divided by 461.9  
18 million total firearms equals 5.3%.

19 <sup>7</sup> ATF, 2022, *supra* note 6, at 12; NSSF, 2020, *supra* note 6, at 2–3.

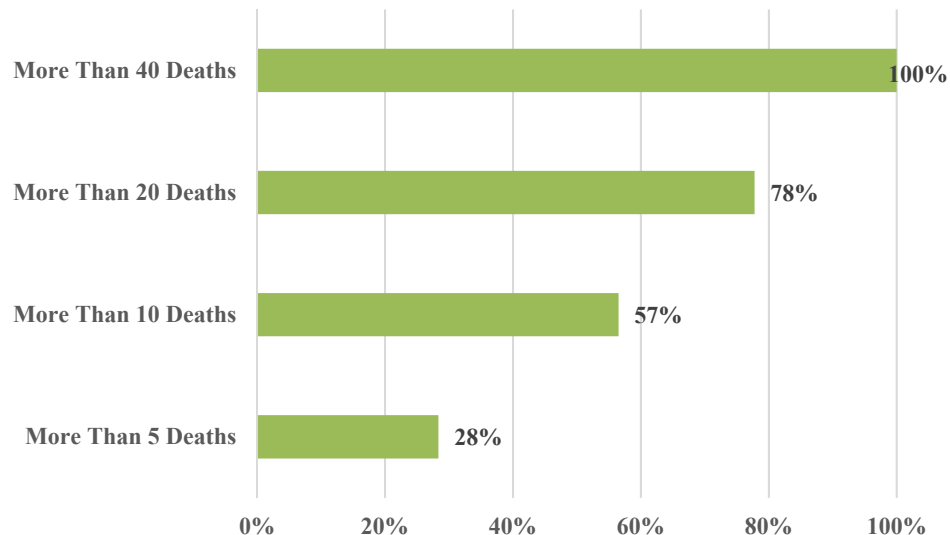
1           14. Another pattern that stands out when examining the relationship  
2 between assault weapons use and mass shooting violence reflects the  
3 disproportionately greater lethality associated with the use of assault weapons. For  
4 instance, returning to the aforementioned list of the seven deadliest individual acts  
5 of intentional criminal violence in the United States since the coordinated terrorist  
6 attack of September 11, 2001, besides all seven of the incidents being mass  
7 shootings, six of the seven incidents (86%) involved assault weapons, as shown in  
8 Table 2. When mass shooting fatalities are examined on a rising scale, the  
9 relationship between assault weapons use and higher death tolls is striking. In the  
10 past 50 years, assault weapons have been used in 28% of all high-fatality mass  
11 shootings and mass public shootings. However, as the fatality threshold of such  
12 incidents increase, so too does the share of incidents involving assault weapons.  
13 For instance, assault weapons were used in 80% of all mass public shootings  
14 resulting in more than 24 deaths and 100% of all high-fatality mass shootings  
15 resulting in more than 40 deaths (Figures 9–10). As the data show, there is an  
16 association between assault weapons use and mass shooting lethality.

17  
18  
19

**Table 2. The Use of Assault Weapons in the Deadliest Acts of Intentional Criminal Violence in the U.S. since 9/11**

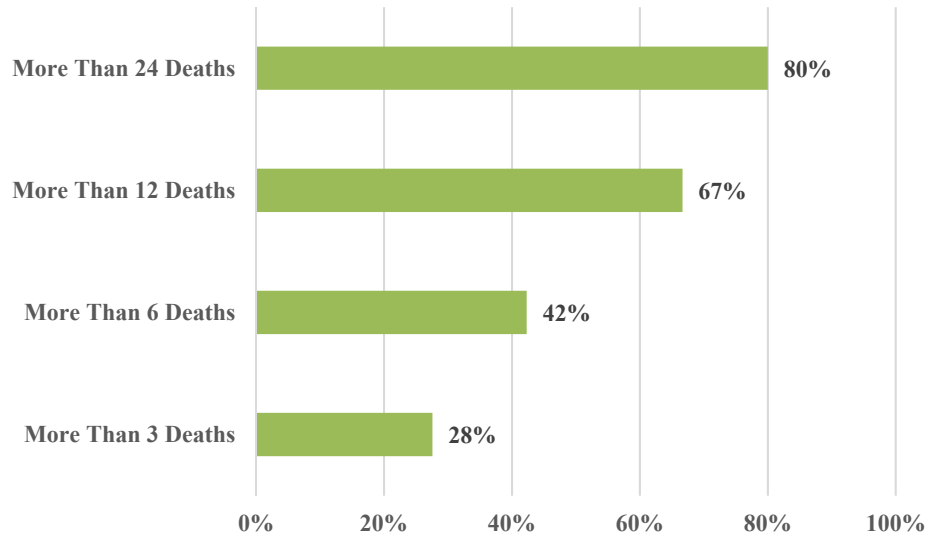
<b>Deaths</b>	<b>Date</b>	<b>Location</b>	<b>Involved Assault Weapon(s)</b>
60	October 1, 2017	Las Vegas, NV	✓ (AR-15)
49	June 12, 2016	Orlando, FL	✓ (AR-15)
32	April 16, 2007	Blacksburg, VA	
27	December 14, 2012	Newtown, CT	✓ (AR-15)
25	November 5, 2017	Sutherland Springs, TX	✓ (AR-15)
23	August 3, 2019	El Paso, TX	✓ (AK-47)
21	May 24, 2022	Uvalde, TX	✓ (AR-15)

**Figure 9. Percentage of High-Fatality Mass Shootings Involving Assault Weapons by Fatality Threshold, 1973–2022**



Note: The calculations in Fig. 9 exclude two high-fatality mass shootings (3/15/2020, Moncure, NC, 6 deaths; and 9/7/2020, Aguanga, CA, 7 deaths) in which the firearms used are unknown.

**Figure 10. Percentage of Mass Public Shootings Involving Assault Weapons by Fatality Threshold, 1973–2022**



Note: The calculations in Fig. 10 exclude one mass public shooting (2/6/17, Yazoo City, MS, 4 deaths) in which the firearms used are unknown.

15. Of the 134 high-fatality mass shootings in that last 50 years in which the type of firearm used is known, 38 involved assault weapons, resulting in 491 deaths. The average death toll for these 38 incidents is 12.9 fatalities per shooting. By contrast, the average death toll for the 96 incidents in which it is known assault weapons were not used (which resulted in 749 fatalities) is 7.8 fatalities per shooting (Table 3). Of the 174 mass public shootings in that last 50 years in which the type of firearm used is known, 48 involved assault weapons, resulting in 496 deaths. The average death toll for these 48 incidents is 10.3 fatalities per shooting. By contrast, the average death toll for the 126 incidents in which it is known assault

1 weapons were not used (which resulted in 759 fatalities) is 6.0 fatalities per  
2 shooting (Table 4). In other words, in the last 50 years, the use of assault weapons  
3 in high-fatality mass shootings and mass public shootings has resulted,  
4 respectively, in 65% and 72% increases in average fatalities per incident (Tables 3  
5 and 4). In the last 10 years, the differences in average fatality rates per incident are  
6 even more pronounced—more than double: 8.0 versus 16.7 deaths per high-fatality  
7 mass shooting and 6.2 versus 12.8 deaths per mass public shooting. These amount,  
8 respectively, to 109% and 106% increases in the average death tolls, associated  
9 with the use of assault weapons (Tables 3 and 4).

10 16. This review of the data suggests that assault weapons are force  
11 multipliers when used to perpetrate mass shootings.

12 ///

**Table 3. The Average Death Tolls Associated with the Use of Assault Weapons in High-Fatality Mass Shootings in the U.S., 1973–2022**

		<b>Average Death Toll for Incidents That Did Not Involve the Use of Assault Weapons</b>	<b>Average Death Toll for Incidents That Did Involve the Use of Assault Weapons</b>	<b>Percent Increase in Average Death Toll Associated with the Use of Assault Weapons</b>
<b>Last Years</b>	<b>50</b>	7.8 Deaths	12.9 Deaths	65%
<b>Last Years</b>	<b>10</b>	8.0 Deaths	16.7 Deaths	109%

Note: The calculations in Table 3 exclude two high-fatality mass shootings (3/15/2020, Moncure, NC, 6 deaths; and 9/7/2020, Aguanga, CA, 7 deaths) in which the types of firearms used are unknown.

**Table 4. The Average Death Tolls Associated with the Use of Assault Weapons in Mass Public Shootings in the U.S., 1973–2022**

		<b>Average Death Toll for Incidents That Did Not Involve the Use of Assault Weapons</b>	<b>Average Death Toll for Incidents That Did Involve the Use of Assault Weapons</b>	<b>Percent Increase in Average Death Toll Associated with the Use of Assault Weapons</b>
<b>Last Years</b>	<b>50</b>	6.0 Deaths	10.3 Deaths	72%
<b>Last Years</b>	<b>10</b>	6.2 Deaths	12.8 Deaths	106%

Note: The calculations in Table 4 exclude one mass public shooting (2/6/17, Yazoo City, MS, 4 deaths) in which the types of firearms used are unknown.

**C. Double-Digit-Fatality Mass Shootings Are a Post-World War II Phenomenon in American History And They Often Involve Assault Weapons**

17. I have also examined the historical occurrence and distribution of mass shootings resulting in 10 or more victims killed since 1776 (Table 5 and Figure 11).<sup>8</sup> In terms of the origins of this form of extreme gun violence, there is no known occurrence of a mass shooting resulting in double-digit fatalities during the 173-year period between the nation's founding in 1776 and 1948. The first known mass shooting resulting in 10 or more deaths occurred in 1949. In other words, for 70% of its 247-year existence as a nation, the United States did not

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<sup>8</sup> I searched for firearm-related "murders," using variations of the term, setting a minimum fatality threshold of 10 in the Newspaper Archive online newspaper repository, *available at* [www.newspaperarchive.com](http://www.newspaperarchive.com) (last accessed October 2, 2022). The Newspaper Archive contains local and major metropolitan newspapers dating back to 1607. Consistent with other analyses on mass murder, incidents of large-scale, inter-group violence such as mob violence, rioting, combat or battle skirmishes, and attacks initiated by authorities acting in their official capacity were excluded.

1 experience a mass shooting resulting in double-digit fatalities, making them  
2 relatively modern phenomena in American history.<sup>9</sup>

3 18. After the first such incident in 1949, 17 years passed until a similar  
4 mass shooting occurred in 1966. The third such mass shooting then occurred nine  
5 years later, in 1975. And the fourth such incident occurred seven years after, in  
6 1982. Basically, the first few mass shootings resulting in 10 or more deaths did not  
7 occur until the post-World War II era. Furthermore, these first few double-digit-  
8 fatality incidents occurred with relative infrequency, although the temporal gap  
9 between these first four incidents shrank with each event (Table 5 and Figure 12).<sup>10</sup>

10  
11  
12  
13  
14  
15 <sup>9</sup> Using the Constitution's effective date of 1789 as the starting point would  
16 lead to the conclusion that, for 68% of its 234-year existence as a nation, the United  
17 States did not experience a mass shooting resulting in double-digit fatalities.

18 <sup>10</sup> Figures 11–12 are reproduced in larger form as **Exhibit D** of this  
19 Declaration.



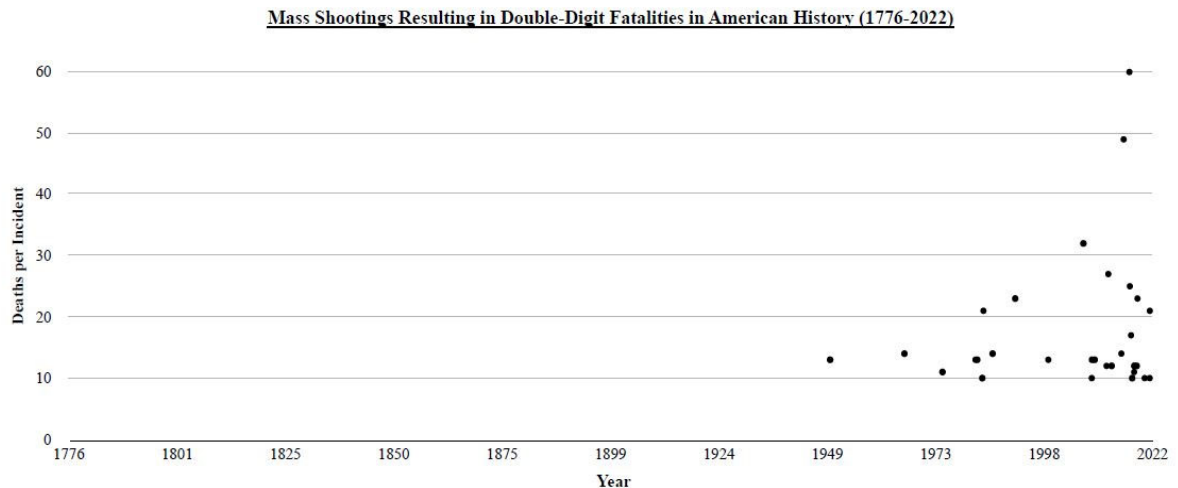
**Table 5. Mass Shootings Resulting in Double-Digit Fatalities in American History (1776–2022)**

				Involved Assault Weapon(s)	Involved Large- Capacity Magazine(s)
	Date	Location	Deaths		
1	9/6/1949	Camden, NE	13	N	N
2	8/1/1966	Austin, TX	14	N	Y
3	3/30/1975	Hamilton, OH	11	N	N
4	9/25/1982	Wilkes-Barre, PA	13	Y	Y
5	2/18/1983	Seattle, WA	13	N	N
6	4/15/1984	Brooklyn, NY	10	N	N
7	7/18/1984	San Ysidro, CA	21	Y	Y
8	8/20/1986	Edmond, OK	14	N	N
9	10/16/1991	Killeen, TX	23	N	Y
10	4/20/1999	Littleton, CO	13	Y	Y
11	4/16/2007	Blacksburg, VA	32	N	Y
12	3/10/2009	Geneva County, AL	10	Y	Y
13	4/3/2009	Binghamton, NY	13	N	Y
14	11/5/2009	Fort Hood, TX	13	N	Y
15	7/20/2012	Aurora, CO	12	Y	Y
16	12/14/2012	Newtown, CT	27	Y	Y
17	9/16/2013	Washington, DC	12	N	N
18	12/2/2015	San Bernardino, CA	14	Y	Y
19	6/12/2016	Orlando, FL	49	Y	Y
	10/1/2017	Las Vegas, NV	60	Y	Y
	11/5/2017	Sutherland Springs, TX	25	Y	Y
	2/14/2018	Parkland, FL	17	Y	Y
	5/18/2018	Santa Fe	10	N	N
	10/27/2018	Pittsburgh, PA	11	Y	Y
	11/7/2018	Thousand Oaks, CA	12	N	Y
	5/31/2019	Virginia Beach, VA	12	N	Y
	8/3/2019	El Paso, TX	23	Y	Y
	3/22/2021	Boulder, CO	10	Y	Y
	5/14/2022	Buffalo, NY	10	Y	Y
	5/24/2022	Uvalde, TX	21	Y	Y

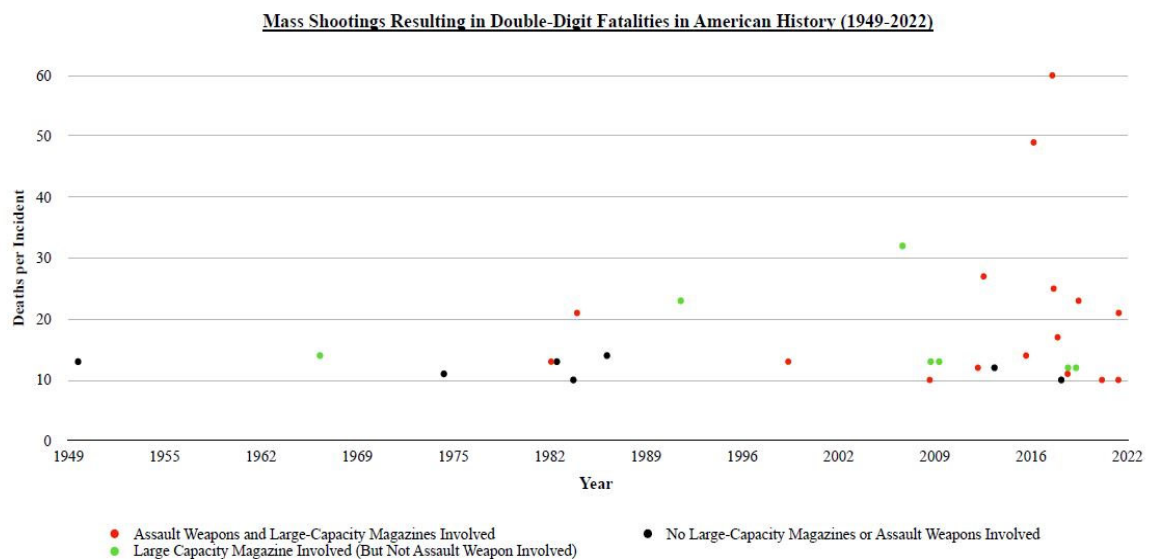
Note: Death tolls do not include perpetrators. An incident was coded as involving an assault weapon if at least one of the firearms discharged was defined as an assault weapon in (1) the 1994 federal Assault Weapons Ban; (2) the statutes of the state where the gun massacre occurred; or (3) a legal or judicial declaration

issued by a state official. An incident was coded as involving a large-capacity magazine if at least one of the firearms discharged was armed with a detachable ammunition-feeding device holding more than 10 bullets.

**Figure 11. Mass Shootings Resulting in Double-Digit Fatalities in American History (1776–2022)**



**Figure 12. Mass Shootings Resulting in Double-Digit Fatalities in American History (1949–2022)**



1           19. The distribution of double-digit-fatality mass shootings changes in the  
 2 early 1980s, when five such events took place in a span of just five years (Table 5  
 3 and Figure 12). This timeframe also reflects the first time that assault weapons  
 4 were used to perpetrate mass shootings resulting in 10 or more deaths: the 1982  
 5 Wilkes-Barre, PA, massacre (involving an AR-15 rifle and resulting in 13 deaths)  
 6 and the 1984 San Ysidro, CA, massacre (involving an Uzi pistol and resulting in  
 7 21 deaths). But this cluster of incidents was followed by a 20-year period in which  
 8 only two double-digit-fatality mass shootings occurred (Figure 12). This period of  
 9 time from 1987–2007 correlates with three important federal firearms measures:  
 10 the 1986 Firearm Owners Protection Act, the 1989 C.F.R. “sporting use”  
 11 importation restrictions, and the 1994 Federal Assault Weapons Ban.

12           20. It is well-documented in the academic literature that, after the Federal  
 13 Assault Weapons Ban expired in 2004, mass shooting violence increased  
 14 substantially.<sup>11</sup> Mass shootings that resulted in 10 or more deaths were no  
 15

---

16           <sup>11</sup> See, for example, Louis Klarevas, Rampage Nation, *supra* note 1  
 17 (Relevant Excerpt Attached as **Exhibit E**); Louis Klarevas, et al., *The Effect of*  
 18 *Large-Capacity Magazine Bans on High-Fatality Mass Shootings*, *supra* note 2  
 19 (Attached as **Exhibit F**); Charles DiMaggio, et al., *Changes in US Mass Shooting*

1 exception, following the same pattern. In the 56 years from 1949 through 2004,  
 2 there were a total of 10 mass shootings resulting in double-digit fatalities (a  
 3 frequency rate of one incident every 5.6 years). In the 18 years since 2004, there  
 4 have been 20 double-digit-fatality mass shootings (a frequency rate of one incident  
 5 every 0.9 years). In other words, the frequency rate has increased over six-fold  
 6 since the Federal Assault Weapons Ban expired (Table 5 and Figure 12). (The 1994  
 7 Federal Assault Weapons Ban and its impact on mass shooting violence is  
 8 discussed in further detail in Section F of this Declaration.)

9 21. Over three-quarters of mass shootings resulting in 10 or more deaths  
 10 involved assault weapons and/or LCMs. As also shown in the analyses of mass  
 11 shootings in Section B, death tolls in double-digit-fatality mass shootings are

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13 *Deaths Associated with the 1994-2004 Federal Assault Weapons Ban: Analysis of*  
 14 *Open-Source Data*, 86 *Journal of Trauma and Acute Care Surgery* 11 (2019)  
 15 (Attached as **Exhibit G**); Lori Post, et al., *Impact of Firearm Surveillance on Gun*  
 16 *Control Policy: Regression Discontinuity Analysis*, 7 *JMIR Public Health and*  
 17 *Surveillance* (2021) (Attached as **Exhibit H**); and Philip J. Cook and John J.  
 18 Donohue, *Regulating Assault Weapons and Large-Capacity Magazines for*  
 19 *Ammunition*, 328 *JAMA*, September 27, 2022 (Attached as **Exhibit I**).

1 related to the use of firearms technologies like assault weapons that, in terms of  
2 mass shootings, serve as force multipliers.

3 **D. Assault Weapons Are Almost Never Used by Private Citizens in Self-  
4 Defense during Active Shootings**

5 22. An important question that, until now, has gone unanswered is: Are  
6 assault weapons used as frequently to stop mass shootings as they are to perpetrate  
7 them? As shown above in Section B, assault weapons have been used in  
8 approximately one-third of mass shootings in the past 25 years (Figures 5–6). And  
9 in the past five years, the share of mass shootings that have involved assault  
10 weapons has risen to approximately half (Figures 5–6).

11 23. The Federal Bureau of Investigation (FBI) has been documenting  
12 active shooter incidents since 2000.<sup>12</sup> According to the FBI, active shootings are  
13 violent attacks that involve “one or more individuals actively engaged in killing or  
14

---

15  
16 <sup>12</sup> All of the information in this section, including definitions and data, are  
17 publicly available from the FBI. *See* FBI, *Active Shooter Safety Resources*,  
18 *available at* [https://www.fbi.gov/how-we-can-help-you/safety-resources/active-](https://www.fbi.gov/how-we-can-help-you/safety-resources/active-shooter-safety-resources)  
19 [shooter-safety-resources](https://www.fbi.gov/how-we-can-help-you/safety-resources/active-shooter-safety-resources) (last accessed May 4, 2023).

1 attempting to kill people in a populated area.”<sup>13</sup> A simple way to conceptualize  
2 active shooter incidents is to think of them as attempted mass shootings. As part of  
3 its analysis of attempted mass shootings, the FBI identifies incidents that involved  
4 armed civilians using their personal firearms to intervene, regardless of whether  
5 the interventions were successful in stopping the attacks and/or neutralizing the  
6 perpetrator(s).

7  
8  
9 <sup>13</sup> FBI, *Active Shooter Incidents in the United States in 2022*, April 2023,  
10 at 1, available at [https://www.fbi.gov/file-repository/active-shooter-incidents-in-](https://www.fbi.gov/file-repository/active-shooter-incidents-in-the-us-2022-042623.pdf/view)  
11 [the-us-2022-042623.pdf/view](https://www.fbi.gov/file-repository/active-shooter-incidents-in-the-us-2022-042623.pdf/view) (last accessed May 4, 2023). The FBI adds,  
12 “Implicit in this definition is the shooter’s use of one or more firearms. The *active*  
13 aspect of the definition inherently implies the ongoing nature of the incidents, and  
14 thus the potential for the response to affect the outcome.” *Id.* (emphasis in original).  
15 In addition to the report on incidents in 2022, the FBI has published seven other  
16 reports on active shooter incidents covering the following seven time-periods:  
17 2000–2013, 2014–2015, 2016–2017, 2018, 2019, 2020, and 2021. All of these  
18 reports are available at the FBI’s “Active Shooter Safety Resources” website,  
19 *supra* note 12.

1           24. In the 23 years between January 1, 2000, and December 31, 2022, the  
2 FBI has identified 456 active shootings occurring in the United States. Out of these  
3 456 active shooter incidents, 18 incidents (3.9%) involved defensive gun uses  
4 (DGUs) by civilians, excluding law enforcement or armed security.<sup>14</sup> Of these 18  
5 DGUs, the firearm used by an armed private citizen intervening was identifiable in  
6 17 incidents; 14 involved handguns and the remaining three involved long guns  
7 (one shotgun, one bolt-action rifle, and one assault rifle).<sup>15</sup> In other words, out of  
8  
9

---

10           <sup>14</sup> In 17 of the 18 DGU-involved active shooter incidents, there was an  
11 exchange of gunfire. For the one incident that did not involve an exchange of  
12 gunfire, the gun (a handgun) was used to detain the active shooter after the shooting  
13 had ceased. FBI, *supra* notes 12 and 13.

14           <sup>15</sup> All 14 DGU incidents that involved handguns also involved armed  
15 civilians who held valid concealed-carry permits or were legally carrying their  
16 handguns. *Id.* In 12 of these 14 incidents, details about the types of handguns used  
17 in self-defense were available in news media accounts or in news media  
18 photographs from the crime scene. In two of the 14 incidents, the use of concealed  
19 handguns was inferred based on details about the shooting reported in news media

1 the 17 incidents where an armed civilian intervened and it was possible to identify  
2 the DGU firearm, only one incident (5.9%) involved an assault weapon.<sup>16</sup> Within  
3 the broader context of all active shooter incidents, only one incident out of 456 in  
4

5  
6  
7 accounts. There is no evidence that either of these two DGU incidents involved an  
8 assault pistol.

9 <sup>16</sup> The FBI also identifies an incident in which an armed individual (a local  
10 firefighter) subdued and detained a school shooter, but there is no evidence that the  
11 armed firefighter drew his handgun during the incident. *Id.* Moreover, local  
12 authorities have refused to comment on whether the firefighter ever drew his  
13 handgun. See Carla Field, *Firefighter Was Armed During Takedown of Shooting*  
14 *Suspect, Sheriff Says*, WYFF, October 3, 2016, available at  
15 [https://www.wyff4.com/article/firefighter-was-armed-during-takedown-of-](https://www.wyff4.com/article/firefighter-was-armed-during-takedown-of-shooting-suspect-sheriff-says/7147424)  
16 [shooting-suspect-sheriff-says/7147424](https://www.wyff4.com/article/firefighter-was-armed-during-takedown-of-shooting-suspect-sheriff-says/7147424) (last accessed January 3, 2023). Adding  
17 this incident to the 17 DGU-involved incidents where the type of firearm was  
18 identifiable would mean that 5.6% (as opposed to 5.9%) of the active shooter  
19 incidents, where an armed civilian intervened, involved an assault weapon.



1 the past 23 years (0.2%) is known to have involved an armed civilian intervening  
2 with an assault weapon.<sup>17</sup>

3 25. The bottom line is that assault weapons are used by civilians with a  
4 far greater frequency to perpetrate mass shootings than to stop mass shootings.

5 **E. Ownership Rates of “Modern Sporting Rifles” in the U.S.**

6 26. As noted above in Para. 13, based on the most recent, publicly-  
7 available NSSF and federal government data, modern sporting rifles—such as AR-  
8 and AK-platform firearms—appear to make up approximately 5.3% of all firearms  
9

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10 <sup>17</sup> FBI, *supra* notes 12 and 13. The one DGU that involved an assault weapon  
11 was the 2017 church massacre in Sutherland Springs, Texas. In that incident, an  
12 armed private citizen used an AR-15-style assault rifle to wound the perpetrator as  
13 he was attempting to flee the scene. While the perpetrator was still able to flee the  
14 scene despite being shot, minutes later, he crashed his vehicle trying to escape and  
15 then took his life with his own firearm before law enforcement could apprehend  
16 him. See Adam Roberts, *Man Who Shot Texas Gunman Shares His Story*,  
17 KHBS/KHOG, November 7, 2017, available at  
18 [https://www.4029tv.com/article/man-who-shot-texas-church-gunman-shares-his-](https://www.4029tv.com/article/man-who-shot-texas-church-gunman-shares-his-story/13437943)  
19 [story/13437943](https://www.4029tv.com/article/man-who-shot-texas-church-gunman-shares-his-story/13437943) (last accessed January 3, 2023).

1 in circulation in American society (24.4 million out of an estimated 461.9 million  
2 firearms), although this likely includes modern sporting rifles possessed by law  
3 enforcement agencies, firearm retailers, and possibly prohibited possessors (e.g.,  
4 criminals). Based on this data, only 6.4 million gun owners—out of an estimated  
5 81 million Americans who own at least one personal firearm—own modern  
6 sporting rifles.<sup>18</sup> In other words, less than 8% of all civilian gun owners in the  
7

---

8 <sup>18</sup> In its most recent survey data (2022), the NSSF found that civilian owners  
9 of modern sporting rifles own, on average, 3.8 such rifles, with 24% of these  
10 owners possessing only one such rifle. NSSF, *Modern Sporting Rifle: Ownership,*  
11 *Usage and Attitudes Toward AR- and AK-Platform Modern Sporting Rifles,*  
12 *Comprehensive Consumer Report*, 2022, at 12, available at  
13 [https://www3.nssf.org/share/PDF/pubs/NSSF-MSR-Comprehensive-Consumer-](https://www3.nssf.org/share/PDF/pubs/NSSF-MSR-Comprehensive-Consumer-Report.pdf)  
14 [Report.pdf](https://www3.nssf.org/share/PDF/pubs/NSSF-MSR-Comprehensive-Consumer-Report.pdf) (last accessed January 16, 2023). The estimate that approximately 6.4  
15 million gun owners possess what the NSSF considers to be modern sporting rifles  
16 is calculated by dividing the 3.8 average number of such rifles that each modern  
17 sporting rifle owner possesses into the 24.4 million such rifles estimated to be in  
18 civilian circulation. This calculation (24.4 million divided by 3.8) equals 6.4  
19 million. Based on survey data, 81 million American adults are estimated to own

1 United States own modern sporting rifles.<sup>19</sup> In terms of the total population of the  
 2 United States, estimated by the Census Bureau to be approximately 333 million  
 3 people in 2022, less than 2% of all Americans own a modern sporting rifle.<sup>20</sup>

4  
 5 \_\_\_\_\_  
 6 guns. Andy Nguyen, “Proposed Assault Weapons Ban Won’t Turn Gun Owners  
 7 into Felons Overnight,” PolitiFact, The Poynter Institute, August 3, 2022,  
 8 available at [https://www.politifact.com/factchecks/2022/aug/03/instagram-](https://www.politifact.com/factchecks/2022/aug/03/instagram-posts/proposed-assault-weapons-ban-wont-turn-gun-owners-)  
 9 [posts/proposed-assault-weapons-ban-wont-turn-gun-owners-](https://www.politifact.com/factchecks/2022/aug/03/instagram-posts/proposed-assault-weapons-ban-wont-turn-gun-owners-) (last accessed  
 January 16, 2023).

10 <sup>19</sup> The finding that less than 8% of all gun owners possess modern sporting  
 11 rifles is calculated by dividing the 6.4 million modern sporting rifle owners by the  
 12 81 million American adults estimated to be gun owners. Taking 6.4 million and  
 13 dividing it by 81 million equals 7.9%.

14 <sup>20</sup> The Census Bureau’s total population estimate for 2022 is 333,287,557  
 15 persons. U.S. Census Bureau, *Growth in U.S. Population Shows Early Indication*  
 16 *of Recovery Amid COVID-19 Pandemic*, December 22, 2022, available at  
 17 [https://www.census.gov/newsroom/press-releases/2022/2022-population-](https://www.census.gov/newsroom/press-releases/2022/2022-population-estimates.html#:~:text=DEC.,components%20of%20change%20released%20today)  
 18 [estimates.html#:~:text=DEC.,components%20of%20change%20released%20tod](https://www.census.gov/newsroom/press-releases/2022/2022-population-estimates.html#:~:text=DEC.,components%20of%20change%20released%20today)  
 19 [ay](https://www.census.gov/newsroom/press-releases/2022/2022-population-estimates.html#:~:text=DEC.,components%20of%20change%20released%20today) (last accessed January 16, 2023). The finding that less than 2% of all Americans

27. In addition to the NSSF’s estimate that there are 24.4 million modern sporting rifles in civilian circulation in the United States as of the end of 2020, the Plaintiffs draw on a survey conducted by William English to support their estimates about the number of AR-15-style rifles in American society.<sup>21</sup> According to English, “about 24.6 million people” have owned “an AR-15 or similar styled rifle.”<sup>22</sup> In surveying ownership rates, English also found that 0.3% of respondents “indicate owning over 100” AR-15 styled rifles.<sup>23</sup> Assuming English correctly estimates that 24.6 million people have owned an AR-15 or similarly styled rifle,

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possess modern sporting rifles is calculated by dividing the 6.4 million modern sporting rifle owners by the 333 million persons in United States. Taking 6.4 million and dividing it by 333 million equals 1.9%.

<sup>21</sup> ECF No. 16 at 12 (Mot. Prelim. Inj.) (*citing* William English, 2021 *National Firearms Survey: Updated Analysis Including Types of Firearms Owned*, Unpublished Paper (Sept. 22, 2022), *available at* [https://papers.ssrn.com/sol3/cf\\_dev/AbsByAuth.cfm?per\\_id=4283305](https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=4283305) (last accessed March 7, 2023)).

<sup>22</sup> English, *supra* note 21.

<sup>23</sup> *Id.*

1 his survey results indicate that approximately 74,000 people own over 100 such  
2 rifles. Moreover, English also reports that 1.3% of all AR-15 style rifle owners  
3 (approximately 320,000 people) own between 11 and 100 such rifles.<sup>24</sup> Even if, for  
4 the sake of argument, these 74,000 people all owned only 101 AR-15s and these  
5 additional 320,000 people all owned 11 AR-15s—the lowest possible number in  
6 the range that they identified as best capturing the number of AR-15 styled rifles  
7 they own—that would mean that, *at the very least, approximately 11 million AR-*  
8 *15 styled rifles are concentrated in the hands of 1.6% of AR-15 owners.*<sup>25</sup> As a

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9  
10 <sup>24</sup> *Id.*

11 <sup>25</sup> As a reminder, the NSSF found that civilian owners of modern sporting  
12 rifles own, on average, 3.8 such rifles, with 24% of these owners possessing only  
13 one such rifle. NSSF, *supra* note 18. While the NSSF, unlike the English survey,  
14 does not report whether respondents in its surveys of modern sporting rifle owners  
15 happen to own more than 10, let alone more than 100, modern sporting rifles, NSSF  
16 has detected a growing trend toward increased ownership of multiple modern  
17 sporting rifles. For instance, in its 2010 survey, it found that 40% of modern  
18 sporting rifle owners owned only 1 modern sporting rifle and 60% owned multiple  
19 modern sporting rifles, with the average number of modern sporting rifles owned

1 reminder, 11 million AR-15 style rifles is a conservative estimate calculated using  
2 the absolute minimum numbers in the reported ranges of 11-to-100 and 101-or-  
3 more.<sup>26</sup>

4  
5 being 2.6. In its 2013 survey, it found that 35% of modern sporting rifle owners  
6 owned only 1 modern sporting rifle and 65% owned multiple modern sporting  
7 rifles, with the average number of modern sporting rifles owned increasing to 3.1.  
8 In its most recent, 2021 survey, the NSSF found that 24% of modern sporting rifle  
9 owners owned only 1 modern sporting rifle and 76% owned multiple modern  
10 sporting rifles, with the average number of modern sporting rifles owned  
11 increasing yet again to 3.8. This speaks to a growing trend in which modern  
12 sporting rifles are being purchased by gun owners who already own a modern  
13 sporting rifle, resulting in modern sporting rifles being concentrated, relatively  
14 speaking, in the hands of those who already own modern sporting rifles. *Ibid.*

15 <sup>26</sup> While the English survey is discussed in an unpublished academic paper  
16 that is publicly available online, there are significant concerns with the study,  
17 which call into question the findings reported in the paper. Arguably, the biggest  
18 problem with the English survey (as reported in the unpublished paper) is that it  
19 appears to be in serious violation of the Code of Professional Ethics and Practices

28. Drawing on the NSSF and English estimates, the Plaintiffs proclaim that, “as compared to the 24 million-plus AR platform rifles in circulation, there are approximately 16 million F-150s on the road.”<sup>27</sup> If there were true parallels between AR-15 style rifles and F-series style pickup trucks, then at least one-  


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of the American Association for Public Opinion Research (AAPOR). *See* “AAPOR Code of Professional Ethics and Practices,” April 2021 (Attached as **Exhibit J**). Among the ways that the English survey seemingly runs afoul of AAPOR canons, it fails to identify the source of sponsorship funding and it fails to fully disclose the measurement tools (Rules III.A.2–3). The former is vital to assuring that the survey was not designed and conducted to further the political or economic interests of particular people or organizations. The latter allows independent observers and researchers to assess if, among other factors, question order, question wording, or answer options biased responses. The latter is also crucial to assuring that select findings were not suppressed because they would, if publicized, undermine the agenda of the survey’s sponsor(s). Without release of the entire questionnaire and the full results, it cannot be confirmed that questions and corresponding responses were not suppressed.

<sup>27</sup> ECF No. 16 at 12.

1 quarter of all F-series pickup trucks would be owned by less than 2% of all F-series  
 2 pickup truck owners. Are there any individual Americans who personally own  
 3 more than 100 F-150 pickup trucks? What about Americans who personally own  
 4 more than 10 F-150 pickup trucks? The answer is unknown. But, according to the  
 5 English survey, apparently there are hundreds of thousands of Americans who  
 6 personally own more than 10 AR-15 style rifles.<sup>28</sup>

7 29. In deriving its estimates, the NSSF often relies on United States  
 8 government data, particularly ATF data.<sup>29</sup> According to the ATF, from 1986  
 9 through 2020 (which reflects the most currently-available data), the civilian stock  
 10 of firearms in the United States has been made up predominantly of handguns.<sup>30</sup>

11  
 12 <sup>28</sup> English, *supra* note 21.

13 <sup>29</sup> NSSF, 2020, *supra* note 6.

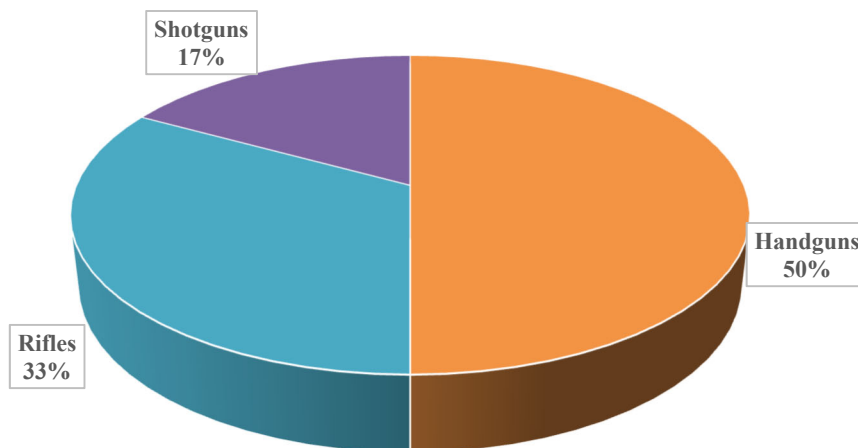
14 <sup>30</sup> For data on the number of firearms manufactured, imported, and exported,  
 15 by category of firearm, from 2000–2020, *see* ATF, *supra* note 6. For similar data  
 16 covering 1986–1999, *see* ATF, *Firearms Commerce in the United States: Annual*  
 17 *Statistical Update, 2021, available at*  
 18 [https://www.atf.gov/firearms/docs/report/2021-firearms-commerce-](https://www.atf.gov/firearms/docs/report/2021-firearms-commerce-report/download)  
 19 [report/download](https://www.atf.gov/firearms/docs/report/2021-firearms-commerce-report/download) (last accessed January 16, 2023).



As Figure 13 shows, handguns account for 50% of the civilian stock of firearms, rifles account for 33%, and shotguns account for 17%.

30. According to ATF data, handguns are the most common firearms in civilian circulation; not rifles, and most certainly not modern sporting rifles that qualify as assault weapons.

**Figure 13. Share of Firearms in Civilian Circulation in the United States, 1986–2020**

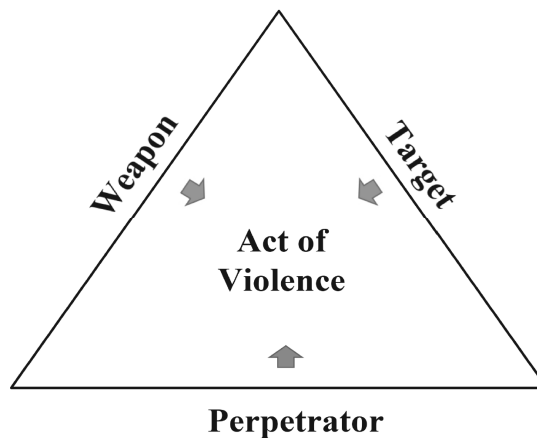


## **F. Restrictions on Assault Weapons and LCMs Reduce the Incidence of Gun Massacres, Resulting in Lives Saved**

### **F.1. Bans in Theory**

31. As conceptualized in the Trinity of Violence model that I developed in my book on mass shootings, every act of violence involves three elements: a perpetrator, a weapon, and a target (Figure 14).<sup>31</sup> The key to mitigating violence is to “break the trinity” by hindering at least one of the three elements. This is accomplished by dissuading the potential offender(s), denying the potential instrument(s) of violence, or defending the potential victim(s).<sup>32</sup>

**Figure 14. The Trinity of Violence**



<sup>31</sup> Klarevas, *supra* note 1, at 27–29, 229–238.

<sup>32</sup> *Id.*

1           32. Bans are law-based concepts that prohibit certain behaviors by  
2 criminalizing them.<sup>33</sup> Bans on assault weapons generally make it illegal to  
3 manufacture, import, transfer, own, or possess certain firearms. Bans work in  
4 relation to two of the three elements of the Trinity of Violence: dissuasion and  
5 denial. With regard to perpetrators, bans use the threat of criminal penalty to *deter*  
6 *potential offenders* from engaging in the prohibited behavior. In the case of bans  
7 on assault weapons, they threaten conviction, imprisonment, and/or fines should  
8 an individual manufacture, import, transfer, or possess a prohibited assault  
9 weapon. One mechanism at work here centers around dissuading potential shooters  
10 from trying to build or otherwise acquire banned firearm technologies. But another  
11 mechanism at work focuses on the assault weapon itself: *deprive potential*  
12 *instruments of violence*. Knowing that someone who is willing to commit murder  
13 might not be deterred from violating another criminal law, like possessing a  
14 prohibited item, bans on assault weapons also threaten punishment against anyone  
15 who tries to transfer (through sale, gift, or loan) a restricted item to someone who  
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17           <sup>33</sup> Philip J. Cook, *Research in Criminal Deterrence: Laying the Groundwork*  
18 *for the Second Decade*, 2 Crime and Justice 211 (1980); Daniel S. Nagin,  
19 *Deterrence in the Twenty-First Century*, 42 Crime and Justice 199 (2013).

1 is prohibited from acquiring it. In essence, the former strategy seeks to dissuade  
2 the offenders and the latter strategy seeks to deny the instruments of violence.

3 33. Ideally, someone intent on committing a mass shooting with an  
4 assault weapon would be dissuaded from going on a rampage by the fact that their  
5 means of choice are not available. In such a scenario, the attack would be quashed.  
6 This *suppression effect* is akin to what economists and psychologists refer to as a  
7 positive spillover effect, where one desirable outcome produces a second, loosely-  
8 related desirable outcome.<sup>34</sup> A real-world example of this is the so-called “Matrix  
9 Killings,” where a 19-year-old Virginia man blamed *The Matrix* film for driving  
10 him to murder his parents with a shotgun. At the time of the crime in 2003, the  
11 Federal Assault Weapons Ban was in effect, preventing him from obtaining an  
12 assault rifle. In a 2013 jailhouse interview, he told CNN, “If I had an assault  
13 weapon, things would have been much worse.” He added that had he had an AR-15  
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15 <sup>34</sup> Paul Dolan and Mateo M. Galizzi, *Like Ripples on a Pond: Behavioral*  
16 *Spillovers and Their Implications for Research and Policy*, 47 *Journal of Economic*  
17 *Psychology* 1 (2015); K. Jane Muir and Jessica Keim-Malpass, *Analyzing the*  
18 *Concept of Spillover Effects for Expanded Inclusion in Health Economics*  
19 *Research*, 9 *Journal of Comparative Effectiveness Research* 755 (2020).

1 instead of a shotgun, he is positive that, after killing his parents, he would have  
2 gone on a rampage and “killed as many people as I possibly could.” As he noted,  
3 “because I didn’t have an assault weapon, that didn’t happen.”<sup>35</sup> In this case, the  
4 unavailability of an assault weapon due to the federal ban appears to have  
5 suppressed the perpetrator’s impulse to commit a mass shooting.

6 34. Of course, some potential mass shooters will not be discouraged from  
7 going on a killing spree just because their means of choice are unavailable. They  
8 will instead replace their desired instruments of violence with available  
9 alternatives. This is commonly referred to as the *substitution effect*, wherein an act  
10 of violence is still perpetrated, but with a different, less lethal instrument of  
11 violence.<sup>36</sup> A real-world example of the substitution effect at work is the 2019  
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13 <sup>35</sup> *Inside the Mind of a Killer*, CNN (Transcripts), August 23, 2013, available  
14 at <https://transcripts.cnn.com/show/pmt/date/2013-08-23/segment/01> (last  
15 accessed January 24, 2023).

16 <sup>36</sup> Philip J. Cook, *The Effect of Gun Availability on Violent Crime Patterns*,  
17 455 *Annals of the American Academy of Political and Social Science* 63 (1981);  
18 Anthony A. Braga, et al., *Firearm Instrumentality: Do Guns Make Violent*  
19 *Situations More Lethal?*, 4 *Annual Review of Criminology* 147 (2021), available

1 synagogue rampage in Poway, California. In that attack, the gunman appears to  
2 have been unable to acquire an assault rifle and LCMs due to California's ban on  
3 both. Instead, he acquired what is known as a California-compliant semiautomatic  
4 rifle (which lacked features such as a pistol grip and a forward hand grip) and 10-  
5 round magazines. As a result, the gunman quickly ran out of bullets, and while  
6 pausing to reload—which appears to have been extremely difficult given that he  
7 did not have assault weapon features on his rifle that facilitated fast reloading—a  
8 congregant chased him away, preventing him from continuing his attack.<sup>37</sup> In this  
9 incident, which resulted in one death, California's ban on assault weapons and  
10 LCMs worked exactly as intended. It deprived the active shooter of the  
11 mechanisms that might have allowed him to kill enough people to surpass the  
12 fatality threshold of a mass shooting. Stated differently, if you examine data sets

13  
14 at [https://www.annualreviews.org/doi/abs/10.1146/annurev-criminol-061020-](https://www.annualreviews.org/doi/abs/10.1146/annurev-criminol-061020-021528)  
15 [021528](https://www.annualreviews.org/doi/abs/10.1146/annurev-criminol-061020-021528).

16 <sup>37</sup> Elliot Spagat and Julie Watson, *Synagogue Shooter Struggled with Gun,*  
17 *Fled with 50 Bullets*, Associated Press, April 30, 2019, available at  
18 [https://apnews.com/article/shootings-north-america-us-news-ap-top-news-ca-](https://apnews.com/article/shootings-north-america-us-news-ap-top-news-ca-state-wire-8417378d6b934a8f94e1ea63fd7c0aea)  
19 [state-wire-8417378d6b934a8f94e1ea63fd7c0aea](https://apnews.com/article/shootings-north-america-us-news-ap-top-news-ca-state-wire-8417378d6b934a8f94e1ea63fd7c0aea) (last accessed January 24, 2023).

1 that identify shootings resulting in mass murder, you will not find the Poway  
2 synagogue attack on their lists.

3 35. It might seem perverse to think that restrictions on certain instruments  
4 of violence operate on the premise that, if an act of violence cannot be averted,  
5 then it will proceed with an alternative instrument. Nevertheless, this is exactly  
6 how bans on assault weapons work in theory. They suppress the inclinations of  
7 potential mass shooters to go on killing rampages in the first place because their  
8 means of choice are unavailable. And, should deterrence fail, bans force  
9 perpetrators to substitute less lethal instruments for more dangerous, prohibited  
10 ones, reducing the casualty tolls of attacks when they do occur.

## 11 **F.2. Bans in Practice**

12 36. In light of the growing threat posed by mass shootings, legislatures  
13 have enacted restrictions on assault weapons in an effort to reduce the occurrence  
14 and lethality of such acts of firearm violence. Prominent among these measures  
15 was the 1994 Federal Assault Weapons Ban. In September 1994, moved to action  
16 by high-profile shooting rampages that occurred the previous year at a San  
17 Francisco law firm and on a Long Island Rail Road commuter train, the U.S.  
18 Congress enacted a ban on assault weapons (as well as LCMs) that applied to all  
19

1 50 states plus the District of Columbia, bringing the entire country under the ban.<sup>38</sup>

2 37. Like the state bans on assault weapons that were implemented before  
3 it, the federal ban was aimed primarily at reducing mass shooting violence—an  
4 objective the ban sought to achieve by prohibiting the manufacture, importation,  
5 possession, and transfer of assault weapons and LCMs not legally owned by  
6 civilians prior to the date of the law's effect (September 13, 1994).<sup>39</sup> Congress,  
7 however, inserted a sunset provision in the law which allowed the federal ban to  
8 expire in exactly 10 years, if it was not renewed beforehand. As Congress  
9 ultimately chose not to renew the law, the federal ban expired on September 13,

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12  
13 <sup>38</sup> Pub. L. No. 103-322, tit. XI, subtit. A, 108 Stat. 1796, 1996–2010  
14 (codified as former 18 U.S.C. § 922(v), (w)(1) (1994)).

15 <sup>39</sup> Christopher Ingraham, *The Real Reason Congress Banned Assault*  
16 *Weapons in 1994—and Why It Worked*, Washington Post, February 22, 2018,  
17 available at [https://www.washingtonpost.com/news/wonk/wp/2018/02/22/the-](https://www.washingtonpost.com/news/wonk/wp/2018/02/22/the-real-reason-congress-banned-assault-weapons-in-1994-and-why-it-worked)  
18 [real-reason-congress-banned-assault-weapons-in-1994-and-why-it-worked](https://www.washingtonpost.com/news/wonk/wp/2018/02/22/the-real-reason-congress-banned-assault-weapons-in-1994-and-why-it-worked) (last  
19 accessed January 2, 2023).



1 2004. In the aftermath of the federal ban's expiration, mass shooting violence in  
2 the United States increased substantially.<sup>40</sup>

3 38. The legislative intent of the State of Washington in enacting the laws  
4 being challenged in the present case is similar to that of other legislative bodies  
5 that have restricted assault weapons: reducing gun violence, especially the  
6 frequency and lethality of mass shootings. Because, on average, the use of assault  
7 weapons results in higher death tolls in mass shootings, the rationale for imposing  
8 restrictions on assault weapons is to reduce the loss of life associated with the  
9 increased kill potential of such firearm technologies.

10 39. Currently, 32% of the U.S. population is subject to a ban on both  
11 assault weapons. The following is a list of the 11 state-level jurisdictions that  
12 presently restrict both assault weapons and LCMs: California (January 1, 1990);  
13 New Jersey (September 1, 1990); Hawaii (July 1, 1992, assault pistols only);  
14 Connecticut (October 1, 1993); Maryland (June 1, 1994, initially assault pistols but  
15 expanded to long guns October 1, 2013); Massachusetts (July 23, 1998); New York  
16 (November 1, 2000); the District of Columbia (March 31, 2009); Delaware  
17  
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19 <sup>40</sup> See sources cited *supra* note 11.

1 (June 20, 2022); Illinois (January 10, 2023); and Washington (April 25, 2023).<sup>41</sup>

2 As a reminder, from September 13, 1994 through September 12, 2004, the entire  
3 country was also subject to federal ban on assault weapons.

4 40. In the field of epidemiology, a common method for assessing the  
5 impact of laws and policies is to measure the rate of onset of new cases of an event,  
6 comparing the rate when and where the laws and policies were in effect against the  
7 rate when and where the laws and policies were not in effect. This measure, known  
8 as the incidence rate, allows public health experts to identify discernable  
9 differences, while accounting for variations in the population, over a set period of  
10 time. Relevant to the present case, calculating incidence rates across states, in a  
11 manner that captures whether or not bans on assault weapons were in effect during  
12 the period of observation, allows for the assessment of the effectiveness of such  
13 bans. In addition, fatality rates—the number of deaths, per population, that result  
14 from particular events across different jurisdictions—also provide insights into the  
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18 <sup>41</sup> The dates in parentheses mark the effective dates on which the listed states  
19 became subject to bans on assault weapons.

1 impact bans on assault weapons have on mass shooting violence.<sup>42</sup>

2 41. Since January 1, 1990, when the first state ban on assault weapons  
3 took effect, through December 31, 2022, there have been 94 high-fatality mass  
4 shootings and 145 mass public shootings in the United States (**Exhibits B and**  
5 **C**).<sup>43</sup> Calculating incidence and fatality rates for this time-period, across  
6 jurisdictions with and without bans on assault weapons, reveals that states that  
7 prohibited assault weapons experienced 46% and 16% decreases, respectively, in  
8 the high-fatality mass shooting and mass public shooting incidence rates. They also  
9 experienced 54% and 37% decreases, respectively, in the high-fatality mass

10  
11 <sup>42</sup> For purposes of this Declaration, incidence and fatality rates are calculated  
12 using methods and principles endorsed by the Centers for Disease Control. *See*  
13 Centers for Disease Control and Prevention, *Principles of Epidemiology in Public*  
14 *Health Practice: An Introduction to Applied Epidemiology and Biostatistics*  
15 (2012), available at <https://stacks.cdc.gov/view/cdc/13178> (last accessed January  
16 3, 2023).

17 <sup>43</sup> There were no state bans on assault weapons in effect prior to January 1,  
18 1990. Therefore, January 1, 1990, is the logical starting point for an analysis of the  
19 impact of assault weapons bans.

1 shooting and mass public shooting fatality rates, regardless of the weaponry used  
2 by the mass murderers (Tables 6–7).<sup>44</sup>

3 42. When calculations go a step further and are limited to mass shootings  
4 involving assault weapons, the difference between the two jurisdictional categories  
5 (non-ban states and ban states) is even more pronounced. In the time-period  
6 between January 1, 1990, and December 31, 2022, accounting for population,  
7 states with assault weapons bans in place experienced 59% fewer high-fatality  
8 mass shootings involving the use of assault weapons and 35% fewer mass public  
9 shootings involving the use of assault weapons. Similarly, jurisdictions with bans  
10 in effect experienced 68% fewer deaths resulting from high-fatality mass shootings  
11 perpetrated with assault weapons and 58% fewer deaths resulting from mass public  
12 shootings perpetrated with assault weapons (Tables 6–7).

13  
14 <sup>44</sup> For purposes of coding, between September 13, 1994, and September 12,  
15 2004, the federal assault weapons ban was in effect. During that 10-year period, all  
16 50 states and the District of Columbia were under legal conditions that prohibited  
17 assault weapons. As such, the entire country is coded as being under an assault  
18 weapons ban during the timeframe that the federal assault weapons ban was in  
19 effect.

1           43. All of the above epidemiological calculations lead to the same  
2 conclusion: when bans on assault weapons are in effect, per capita, fewer high-  
3 fatality mass shootings occur and fewer people die in such shootings—especially  
4 incidents involving assault weapons, where the impact is most striking.

5           44. The main purpose of bans on assault weapons is to restrict the  
6 availability of assault weapons. The rationale is that, if there are fewer assault  
7 weapons in circulation, then potential mass shooters will either be dissuaded from  
8 attacking or they will be forced to use less-lethal firearm technologies, resulting in  
9 fewer lives lost. The epidemiological data lend support to the policy choices of the  
10 State of Washington that seek to enhance public safety through restrictions on  
11 civilian access to certain firearms. While imposing constraints on assault weapons  
12 will not prevent every mass shooting, the data suggest that legislative efforts to  
13 restrict such instruments of violence should result in lives being saved.

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**Table 6. Incidence and Fatality Rates for High-Fatality Mass Shootings, by Whether or Not Assault Weapons Bans Were in Effect, 1990–2022**

	Annual Average Population (Millions)	Total Incidents	Annual Incidents per 100 Million Population	Total Deaths	Annual Deaths per 100 Million Population
<b>All High-Fatality Mass Shootings</b>					
Non-AW Ban States	159.2	64	1.22	673	12.81
AW Ban States	137.1	30	0.66	264	5.84
Percentage Decrease in Rate for AW Ban States			46%		54%
<b>High-Fatality Mass Shootings Involving Assault Weapons</b>					
Non-AW Ban States	159.2	23	0.44	333	6.34
AW Ban States	137.1	8	0.18	92	2.03
Percentage Decrease in Rate for AW Ban States			59%		68%

Note: Population data are from U.S. Census Bureau, “Population and Housing Unit Estimates Datasets,” available at <https://www.census.gov/programs-surveys/popest/data/data-sets.html> (last accessed January 3, 2023).

**Table 7. Incidence and Fatality Rates for Mass Public Shootings, by Whether or Not Assault Weapons Bans Were in Effect, 1990–2022**

	Annual Average Population (Millions)	Total Incidents	Annual Incidents per 100 Million Population	Total Deaths	Annual Deaths per 100 Million Population
All Mass Public Shootings					
Non-AW Ban States	159.2	84	1.60	694	13.21
AW Ban States	137.1	61	1.35	375	8.29
Percentage Decrease in Rate for AW Ban States			16%		37%
Mass Public Shootings Involving Assault Weapons					
Non-AW Ban States	159.2	27	0.51	325	6.19
AW Ban States	137.1	15	0.33	119	2.63
Percentage Decrease in Rate for AW Ban States			35%		58%

Note: Population data are from U.S. Census Bureau, “Population and Housing Unit Estimates Datasets,” available at <https://www.census.gov/programs-surveys/popest/data/data-sets.html> (last accessed January 3, 2023).

DATED this 30<sup>th</sup> day of May, 2023, at Nassau County, NY.

  
LOUIS KLAREVAS, PHD

**DECLARATION OF SERVICE**

I hereby declare that on this day I caused the foregoing document to be electronically filed with the Clerk of the Court using the Court's CM/ECF System which will serve a copy of this document upon all counsel of record.

DATED this 1st day of June, 2023, at Seattle, Washington.

/s/ Andrew R.W. Hughes

ANDREW R.W. HUGHES, WSBA #49515  
Assistant Attorney General